



# Soil Life 620 Compost Tea Brewer



## OPERATING MANUAL

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Congratulations on buying a Symbio Soil Life 620 litre Bio Brewer, you now have the basic equipment needed to reintroduce the life to your soil, rootzone or growing media to improve the health of your plants and reduce inputs of inorganic fertilisers and pesticides.

## COMPOST AND COMPOST TEA

The reduction in pesticides available to growers since the 1980's coupled with increasing cost of inorganic fertiliser has encouraged a movement to growing healthy plants in healthy soil to increase yields and reduce reliance on inorganic fertilisers and pesticides. The intervening years have seen rapid developments in the use of compost teas in all areas of commercial and amenity plant production. These developments have been driven by substantial research, aided by improved microscopy and other investigative techniques plus the urgent need for solutions to the increasing problems of soil depletion and pest and disease pressure caused by continued chemical inputs to the soil.

**The philosophy is simple; you either get the soil to work for you and reap the benefits of plant and soil evolution or use it as a receptacle for chemicals.**

The use of compost and compost teas is the simplest way to develop healthy soil, maximise yields and minimise chemical inputs.

### What is Compost Tea?

Compost Tea is a microbial solution that adds beneficial organisms to the soil to improve soil structure, sustain plants, build humus in the soil, and enhance nutrient uptake.

Aerated compost contains millions of beneficial organisms, but it is not always possible or practical to obtain or apply it, while Compost Tea contains billions of beneficial organisms and can be easily made and applied over large areas.

Compost Tea is not a quick fix, and not a stand-alone product. It builds soil health over time - adding beneficial organisms that aid in plant health and growth. It is not an NPK fertiliser or a pesticide

Compost tea is an extract of the microbial life in your compost. It can be either bacterial or fungal dominated but in all cases a good compost tea will contain:

- Enzymes and amino-acids
- Bacteria, fungi, protozoa and beneficial nematodes
- Water soluble nutrients and organically bound nutrients
- Small quantities of NPK.

The quantity, diversity and quality of these micro-organisms depends on the quality of the compost used for the extraction, the brewer used and micronutrients and starters added for optimum organism growth.

**Compost Tea is not a product** but the watery means of transport for micro-organisms. Compost tea is a temporary survival unit that allows living micro-organisms to be taken from the compost, multiplied rapidly and introduced to the soil and leaf.

The extracted compost-tea is a mixture of organically produced enzymes, fungi, bacteria, protozoa and beneficial nematodes with natural humic acids capable of enhancing your soil structure and the uptake of nutrients by your crops or grass.

Compost-tea from the Symbio 620 brewer maximises the microbial activity in your soil. These microbes will behave as catalysts in humus production in your soil and will make minerals in the soil available to your grass or crops.

In addition to providing the bacteria, fungi, nematodes and protozoa your soil needs the compost-tea from the Symbio 620 brewer also contains the necessary nutrients for these organisms to flourish.

### **Why is compost-tea used?**

Inorganic fertilisers are mineral salts which together with pesticides, compaction and water logging deplete the soil and substantially reduce the activity of soil micro organisms. Compost-tea can rebuild your natural soil fertility and disease resistance by bringing these organisms back into your soil together with their supporting nutrients. Compost-tea is an important management tool for building a healthy soil food web. Compost and good quality aerobic compost-tea can restore a healthy soil food web in a relatively short period of time; results will usually be seen in weeks.

### **Advantages of using compost-tea:**

- ✓ It adds and stimulates the organisms in your soil and on your plants, grass or crops to provide a continuous flow of available nutrients matched to the plant's needs.
- ✓ It increases the speed of decomposition of dead plant material e.g. thatch and stubble converting it to soil building humus.
- ✓ The nutrition value of your crop will increase dramatically.
- ✓ Your staff will be exposed to fewer toxic chemicals.
- ✓ Your soil food web will be enhanced instead of being killed.
- ✓ Seed germination and ripening of fruits is stimulated.
- ✓ Growth processes and defence mechanisms against drought and disease in your plants are stimulated.
- ✓ As the soil biology develops natural disease suppression will return to your rootzone as the compost-tea stimulates the soil organisms responsible for disease suppression.

## Assembly Instructions for Soil Life 620 Brewer



There are two drain holes in the Symbio 620. To decant the finished compost tea connect the green drainage hose to the top outlet. To remove the residue before cleaning connect the drainage hose to the bottom outlet.



Push the connector over the coupling on the 620 brewer and fix by pulling both levers parallel with the hose.



The air pump must be kept above the level of the water in the 620 brewer at all times. It should be mounted on a stable platform away from water. Electricity and water do not mix, you are advised to **install a contact breaker unit between the plug and electricity supply.**



Connect the open end of the air hose to the valve and the valve to the black rubber connecting tube, which in turn is connected to the outlet of the air pump.



Connect the air hose to the 620 Brewer by pushing the connection together and pulling the coupling towards the air hose to complete an airtight seal



There is a gate valve on each water outlet, reached through hole in the outer wall of the base of the 620 Brewer. **Ensure both gate valves are closed before filling with water**



To empty the compost tea into your sprayer attach the green hose to the upper drain. Open the gate valve to the drain to be used by pulling the handle towards you.

To clean the unit and remove debris close the upper drain attach the green hose to the lower drain and open the gate valve to the lower drain and drain and flush the Bio Brewer with clean water until all debris has been removed.

### **How Much Compost should I use?**

The Symbio Compost Tea Packs contain all the pre tested compost and nutrients needed to make a good compost tea.

The 100 litre pack is designed to be made with a minimum of 100 litres of water; there is no maximum amount of water up to 600 litres.

### **Approximate coverage per pack**

#### **100 Litre Compost tea Pack covers**

10,000 sq.m soil with low organic matter < 2% and peat growing media

10,000 – 20,000 sq.m soil with average organic matter 2-4%

20,000 – 40,000 sq.m soil with high organic matter > 4% and peat free growing media

For advice on quantities for specific soils contact your Symbio Advisor

### **Operating Instructions**

1. Ensure both the gate valves are closed.
2. Fill the 620 Brewer with at least 100 litres of clean water for every hectare to be treated. There is no maximum amount of water. You can use between 100 – 700 litres of water per hectare
3. If the water is chlorinated fill up the day before use or aerate the water for at least 60 minutes until all odour of chlorine has gone.
- 4. Check all connections are closed tightly and not leaking.**
5. The ingredients from the Symbio Compost Tea brewing kit may be added in one of three ways

### **Option 1**

Add the nutrients to the water then add the compost and switch on the aeration

## Option 2

Use Compost Tea Bag when brewing in 100 to 500 litres of water



Add the nutrients to the water.

Put the compost into the tea bag and close the Velcro tab tightly and tie the string to a bar laid across the top of the brewer so that the tea bag is completely covered by water and hangs directly over the air diffuser.

When the compost tea is mature switch off the air pump and remove the tea bag before decanting the solution. Allow to settle for 20 minutes.

You should filter the compost tea before putting it into the sprayer as small particles will escape from the tea bag during the brewing process

## Option 3

For brewing 500 litres +



Add the nutrients to the water.

Place the compost holder into the top of the brewer.

Add the required amount of compost to the compost holder and switch on air pump

When the compost tea is mature switch off the air pump and remove the tea bag before decanting the solution. You should filter the compost tea before putting it into the sprayer as small particles may escape from the compost holder during the brewing process

6. Remove the lid when brewing tea, it may damage the air pump. Only use the lid on the 620 Brewer to protect it when not in use.
7. Open the air valve. Connect to the electrical supply via a contact breaker. Let the Symbio 620 brewer brew for 18 – 24 hours.
8. If the compost tea starts to foam add a cupful of vegetable oil.

## **Brewing Times**

**All times below are based on an ambient air temperature of approx 15-20 degrees. Extend the brewing time if it is colder**

The quantity and type of microbe you grow is dependent upon the content and quality of compost, the nutrients added and the length of time taken for the brewing process. The following suggestions are for compost tea made with Symbio approved additives and nutrients

### **Bacterial Dominant Tea**

In general bacteria grow first and fastest and you should have a bacterial dominant tea if brewed for 10-12 hours.

Uses – Foliar feeding, soil drench for annual plants, early spring start for annual grasses

### **Balanced Bacterial: Fungal Tea**

Fungi feed on more complex nutrients like cellulose and lignin which are harder to degrade so they take longer to grow. As a general rule brew your tea for 18-24 hours for a balanced tea with nematodes and protozoa.

Uses – Use as a soil drench for most soils, amenity turf and crops

### **Fungal Dominant Tea**

It is not so easy to make a fungal dominant tea. We recommend adding Symbio Fungal additive for compost teas and brewing for 36-48 hours. Nematodes tend to reduce in numbers after 18-24 hours.

Uses – Use as a soil drench for trees. On amenity turf systems apply where fairy rings and fungal dry patch are a problem. In nursery and horticulture apply when soil borne fungal diseases are present

### **Protozoan Dominant Tea**

Protozoa eat bacteria so eventually protozoan numbers grow and the bacterial population reduces. This usually takes 36-72 hours.

Uses – Where analysis shows protozoan numbers are low.

The above timings are an approximate guide only. We suggest you look at your tea under a microscope or have it analysed. Contact your Symbio advisor to find out when Symbio is running its next microscope class in your area



**To decant the finished Compost Tea from the Symbio 620 Brewer.****DO NOT ATTEMPT TO TIP THE 620 BREWER WHEN FULL**

1. When the compost tea is ready to use (see brewing times above).
2. Disconnect the electrical supply and close air hose valve.
3. Leave the tea to stand for 20 minutes to allow solid matter to settle out or float to the surface.
4. Ensure the green hose is secured to the chosen outlet with the sieve provided (or pair of wide mesh tights which many users find to be the best sieve available) attached to the other end to filter debris before the liquid enters your spray tank. Use as wide a mesh as possible because a fine mesh will filter out the larger micro-organisms. It may be easier to decant the tea into a bucket before adding to the spray tank.
5. Open the gate valve for the chosen outlet and decant the tea. If the 620 brewer is full connect the green hose to the top exit and open the top valve to reduce the water pressure.
6. Apply the tea as soon as possible ideally within four 4 hours of manufacture. Compost-tea is full of living organisms and has a very short shelf-life.
7. If you cannot apply the compost tea within four 4 hours, leave it in the brewer and aerate for 5-10 minutes every hour.
8. Clean the Symbio 620 brewer following the cleaning instructions.

**Cleaning the Symbio 620 brewer.**

N.B It is very important to clean the brewer thoroughly after each use to prevent anaerobic bacteria and disease causing pathogens to grow on the nutrients left behind. The 620 Bio Brewer is white for a purpose. You should not be able to see any brown staining in the brew tank

**Disconnect the electrical supply.**

1. Detach the air hose from the bottom of the brewer
2. Open both gate valves
3. Tip the 620 brewer on its side using the straight edge at the bottom of the brewer so that all remaining liquid is removed. (It may be easier to remove the green hose if discharging directly to drain)
4. Wash all debris and bio film from the 620 brewer with a hose, drain so no water is remaining in the 620 brewer and allow to dry
5. Clean the barrel once in every 4 weeks with Symbio Compost Tea Brewer Cleaning Solution or hydrogen peroxide e.g. Napisan. Fill the brewer with clean water, add the cleaning solution in accordance with instructions. Stand for an hour then run the air pump for 20-30 minutes. Drain through both valves and allow to dry

**Compost Tea Application**

Use the compost tea within 4 hours of switching off the aerator, otherwise the micro organisms will use up all the oxygen and the brew will go anaerobic. If it is not possible to apply the tea within 4 hours then run the aerator for 5 –10 minutes every hour and apply a tablespoon of sugar, liquid seaweed or fish hydrolysate to feed the micro organisms.

Compost tea may be applied neat or diluted with clean chlorine free water. Ideally it should be made and diluted with your irrigation water.

**Soil Application – To develop the soil food web**

Apply at least 100 litres of compost tea per hectare. Use wide nozzle or spray heads. Dilute the tea with enough chlorine free water to match your usual spray settings. If you use tap water fill up the tank a few hours before use to allow the chlorine to dissipate before adding the compost tea.

You cannot overdose compost tea, for areas of poor quality soil, poor growth or suffering high levels of wear the soil will benefit from several passes with the sprayer.

**Foliar Application**

You need at least 50 litres of compost tea per hectare, diluted no more than 1:1 unless testing shows the tea to be very rich in bacteria and fungi

The micro-organisms are light sensitive so apply on cloudy days or in the evening if possible, especially if you are applying as a foliar spray.

Compost tea has no direct pesticidal effect, any benefit is gained by beneficial bacteria colonising any lesions in the plants surface, growing on the exudates preventing pathogens from entering and attacking the plant. To have any effect at least 70% of the leaf surface must be covered on the top and bottom of the leaf.

To ensure potential infection sites are covered before the pathogens can find them on the leaf, or root, Compost tea is a pro-biotic, not an anti-biotic.

**Commercial Sprayers**

When using commercial sprayers, the compost tea may be mixed with as much water as is required to get an even spray pattern. Use the widest nozzle setting possible - at least 1mm and the lowest pressure possible, ideally no more than 2 bar.

**Make sure there are no pesticide residues in the tank**

If using mains water fill the tank a few hours before adding the compost tea to allow the chlorine to dissipate.

Agitate the compost tea solution while in the tank.